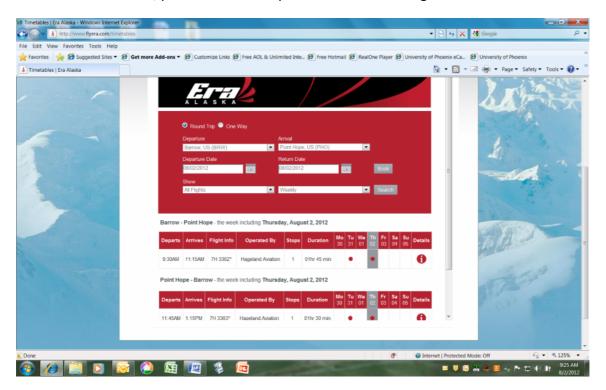
Arctic Construction and Maintenance Challenges on the North Slope

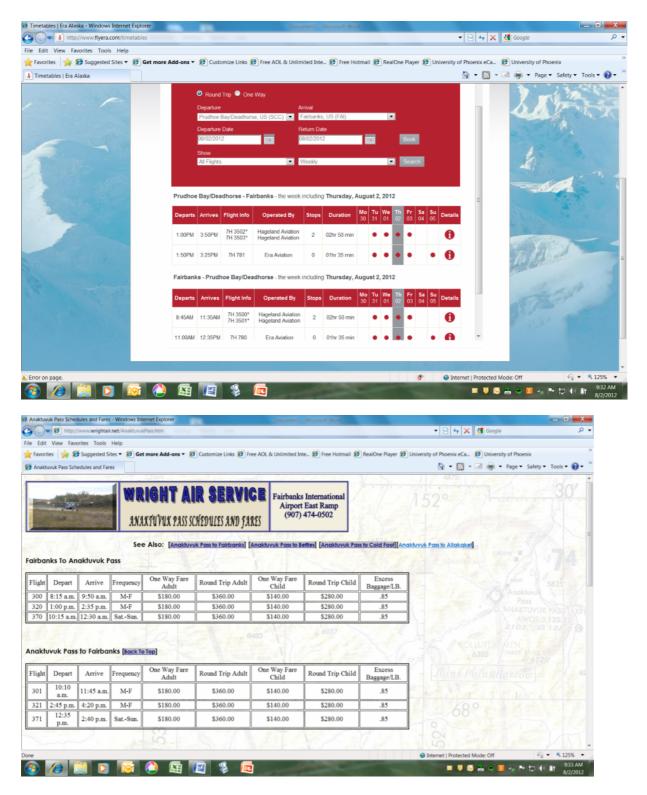
Building and maintaining outside plant in the Arctic presents many challenges that are found nowhere else in the America. It is hard to imagine a fair comparison to similarly situated companies outside the few that border ASTAC on its southern boundary. Our lack of roads, extreme cold, blizzards, widely dispersed insular communities and a very short construction season all drive up the cost to bring telecommunications services to the Inupiat people of the North Slope.

• The lack of roads¹ means everything from personnel to equipment has to be flown or delivered by air cargo. As you can see by the following schedules, flights from our hubs in Barrow and Deadhorse are protracted, with limited opportunity to come and go. There are no direct flights from Deadhorse to Anaktuvuk Pass. Our choices are to either charter for ~\$3000 per trip or fly to Fairbanks, overnight and switch carriers to get into Anaktuvuk Pass. The return path is similar and there is little difference in cost when you consider hotel, per diem and non-productive labor during travel.



Providing service to Point Hope from Barrow involves an hour and forty five minute plane ride, one way, with twice weekly flights.

¹ Deadhorse is the only exchange that has terrestrial transportation via the Dalton Highway.



There are no direct flights to Anaktuvuk Pass from Barrow unless we charter the entire plane.



Anaktuvuk Pass in July. Summer construction season is 75-90 days.



Construction in the Arctic.

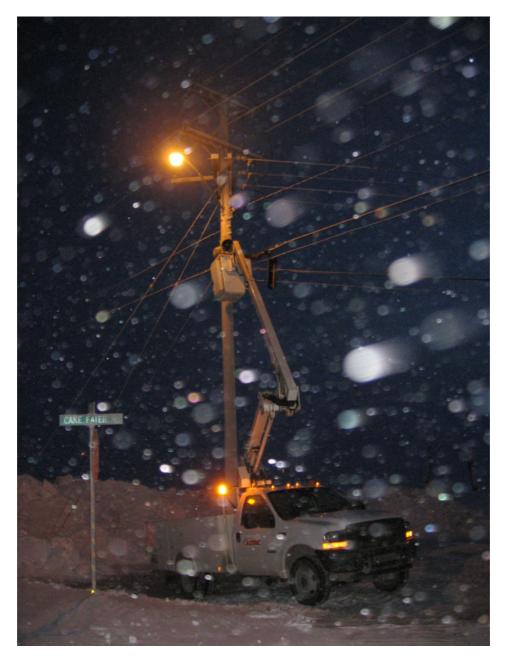
Extreme cold and blizzards hamper operations, making the simplest tasks like getting to work an issue. Extreme cold is our reality and we mitigate cold injuries by investing in the proper clothing, equipment and safety training and standards, but not without some corresponding decrease in work output during inclement periods.



ASTAC technician vehicles at camp the morning after a blizzard (above) and what they found at our central office after digging out at camp (below).



Operating expenses for maintenance of existing facilities are higher than the norm because everything is either flown in or barged over brief summer. As examples, gasoline can exceed \$9 per gallon in some of our exchanges where it is flown in. Electricity is \$.29 per kilowatt hour, almost three times the national average of \$.1029 per kilowatt hour.²



Extreme cold, darkness and stormy weather are our operating realities.

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 $^{^2\} http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_03$

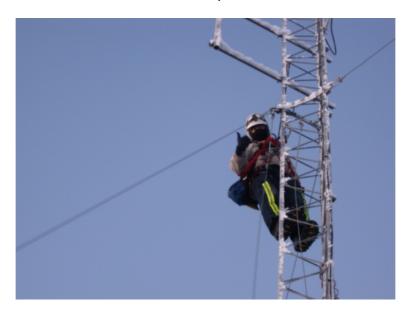
Permafrost exists year round and impedes trenching, requiring extensive replacement of teeth on the Ditch Witch saw just to plow a short section of cable.



"Super Sucker" tankers (at \$345 each per hour) are used to remove material from co-location trenches to protect other utilities' facilities (e.g. gas and power). An average trenching job may require two tankers for the length of the project. Because of the brief construction period and the cost to mobilize and safeguard the open trench at the end of each shift, technicians generally work twelve or more hours per day.



Cold and darkness are a constant for much of the year.





Even with the coming of spring and the return of the sun, winter's challenges linger.



After months of total darkness, "spring" wind storms can damage facilities and close roads.



Alaska is unique; the North Slope is extreme!